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An emendation of the generic concept of *Pachyloides*, with the description of a new species (Opiliones, Gonyleptidae, Pachylinae)

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An emendation of the generic concept of *Pachyloides*, with the description of a new species (Opiliones, Gonyleptidae, Pachylinae). - The diagnosis and scope of the genus *Pachyloides* are emended, to comprise not only species with 7 tarsal segments in legs III and IV, but also those with 6 tarsomeres in those legs. As a result, three new combinations arise, all removed from *Parabalta*: *Pachyloides sicarius*, *Pachyloides borellii* and *Pachyloides alticola*. The genus *Daguerreia* is determined to be a junior synonym of *Pachyloides*; one of its species is transferred to the latter (*Pachyloides maculatus*), the remaining one (*Daguerreia inermis*) is considered *incertae sedis*. A new species, occurring in montane forests of the Argentinian provinces of Tucumán and Catamarca, is here described as *Pachyloides cochuna* (tarsal segments 6:n:6:6); it can be separated from other members of the genus by the presence of a tuberous apophysis on coxa IV of the male.

Key-words: Opiliones - Gonyleptidae - *Pachyloides* - systematics - Neotropics.

INTRODUCTION

Like many other genera of Pachylinae, whose current definitions go back to the Roewerian system, *Pachyloides* Holmberg, 1878 remained hitherto an ill-defined entity, in need of revision. The genus was monotypic when first described, but then about 12 species have been further assigned to it (see complete list below).

Roewer (1913) characterized *Pachyloides* by the combination of four main features: ocular mound with paired armature, palpal femur armed with a subapical spine, dorsum and free tergites unarmed, and tarsal formula 6:n:7:7. According to

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these "traditional" criteria, the nearest relative of *Pachyloides* would be *Parabalta* Roewer, 1913, since it shows the same character states, save the number of tarsal segments on legs III and IV (6:n:6:6 in the latter; ACOSTA 1992). *Parabalta* was originally erected for the Chilean *Gonyleptes reedii* Butler, 1876 (type species by monotypy). In 1925 ROEWER added to it two new species from NW Argentina, *P. sicaria* and *P. borellii*, and later RINGUELET (1963) described *Parabalta alticola*, from the Argentinian province of La Rioja. Six species usually deemed to belong to *Neopucroliella* Roewer, 1931 have been transferred to *Parabalta* by SOARES & SOARES (1954), as they believed that those genera were synonyms. Their view has not been supported (RINGUELET 1956, 1959; ACOSTA 1993) and *Neopucroliella* has been currently mantained as valid. However, one of the species assigned to it must remain in *Parabalta*: *P. cristobalia* (Roewer, 1943), from Chile (ACOSTA 1993). Thus, this genus comprises so far two nominal species from this country and three from Argentina.

I first noticed the inadequacy of the generic taxonomy while revising the two supposed Argentinian *Parabalta* species described by ROEWER (1925) (ACOSTA 1992). Although fitting well into the classical definition of *Parabalta*, the habitus of these species parallels closely that of *Pachyloides thorellii* Holmberg, 1878 (type species), even more than the latter resembles some other presumed *Pachyloides*. As I have already noted (ACOSTA 1992), the reliability of the tarsal formula as the only diagnostic character seems not to be convincing. First, the character proved to be somewhat variable in some species of *Pachyloides*: 7,9% of the studied tarsi III and IV of *P. thorellii* bear 6 segments instead of 7, while this percentage rises to 20,3% in *Pachyloides tucumanus* Canals, 1943. Such variability may affect only one pair of legs, or even a single tarsus. This was probably not noticed by RINGUELET (1959), so that he misidentified examples of *P. thorellii* and *P. tucumanus* with tarsomeres 6:n:6:6, determining them wrongly as *Parabalta sicaria*. RINGUELET (1959) also assigned to this nominal species some individuals belonging to a yet unnamed form, which I describe below as *Pachyloides coclima*. Ringuelet's mistakes are surprising, for he seemingly took into account exclusively the tarsal formula for identification, instead of considering the whole morphology, which would have provided him with many good diagnostic features.

In fact, these difficulties emphasize the already mentioned morphological closeness between *Pachyloides* proper and the supposed Argentinian *Parabalta* species. When reviewing these forms (ACOSTA 1992) I was not able to study the Chilean *Parabalta* -which include the type species-, so I was then unable to decide whether the case was one of full generic synonymy or if those species should be transferred to *Pachyloides*. I have now studied the Chilean species (the revision of *Parabalta*, with at least three new forms, will be published elsewhere), and it is now clear that the solution corresponds to the second alternative. *Parabalta* is well defined by its external and genital morphology, and it is geographically limited to central Chile, in contrast to the wide trans- and cisandean range suggested by the old, erroneous concepts (Fig. 1). The transfer of *P. sicaria*, *P. borellii* and *P. alticola* to

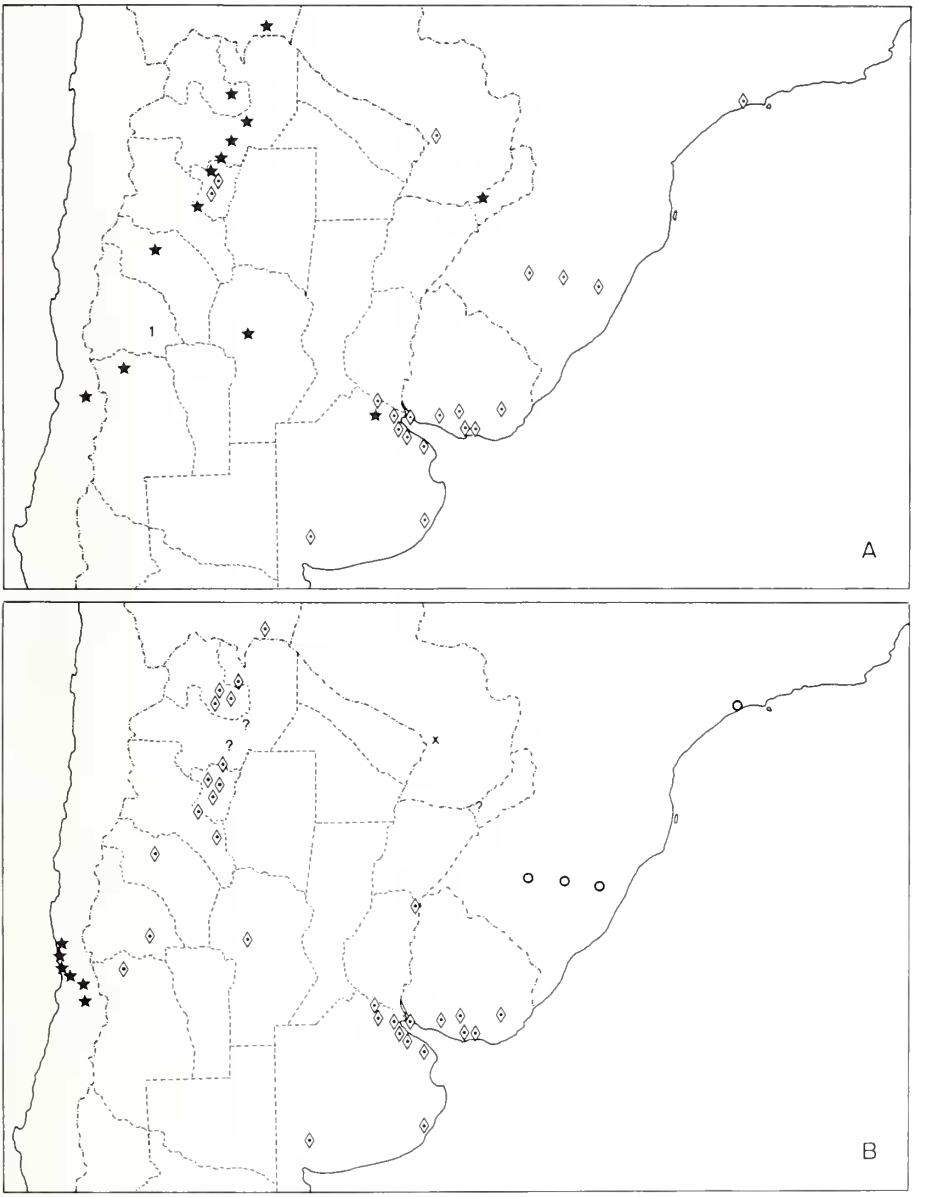


FIG. 1. **A:** Supposed ranges of the genera *Pachyloides* (rhombs) and *Parabalta* (stars), according to the data hitherto available in the literature; "1" indicates a site where a harvestman genus "near to *Parabalta*" was mentioned (Maury & Roig Alsina, 1982). **B:** Known localities of the same genera, after the changes proposed in this paper (new localities have been added); circles: species from southern Brazil, that probably should be removed from *Pachyloides* (see text); x: type locality of *Pachyloides fischeri* and *Pachyloides tuberculatus*, junior synonyms of *Discocyrtus dilatatus*: ?: localities from which "*Parabalta*" *sicaria* was cited, but I have not been able to check the specimens.

Pachyloides requires a modification of the diagnosis of the genus, to include the forms with 6 tarsites in legs III and IV, among them the new species *P. cochuna*.

Further, there is a nominal genus which must be synonymized with *Pachyloides*: *Daguerreia* Canals, 1933. When first described, it included only *Daguerreia maculata* Canals, 1933. The brief original diagnosis does not indicate which characters justify the creation of a new genus, or the differences from other genera. This diagnosis – which followed closely the Roewerian style – cannot be distinguished from that of *Pachyloides*. Apart from this, the genital morphology (Figs 6–7) confirms that they are the same genus. *Pachyloides maculatus* n. comb. differs from «typical» *Pachyloides* by its darker coloration, instead of the reddish-hazel colour characteristic of most species in the genus. But many other external features, e.g. the armature of leg IV of male, show clear similarities. It is strange that no author has even suggested this affinity. More surprisingly, Soares & Soares (1947) described *Daguerreia inermis* from Brazil, upon a single female and without stating why they decided to place their new species in *Daguerreia* and not into another genus. This form probably does not belong in *Pachyloides* (Pinto-da-Rocha, in litt.), and thus it must remain as *incertae sedis* until its generic position can be clarified.

Abbreviations of the collections cited are as follows: CDA (Cátedra de Diversidad Animal I, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Córdoba), IML (Instituto Miguel Lillo, Tucumán),MACN (Museo Argentino de Ciencias Naturales, Buenos Aires), MHNG (Muséum d'histoire naturelle de Genève), and SMF (Senckenberg Museum, Frankfurt).

Genus *Pachyloides* Holmberg, 1878

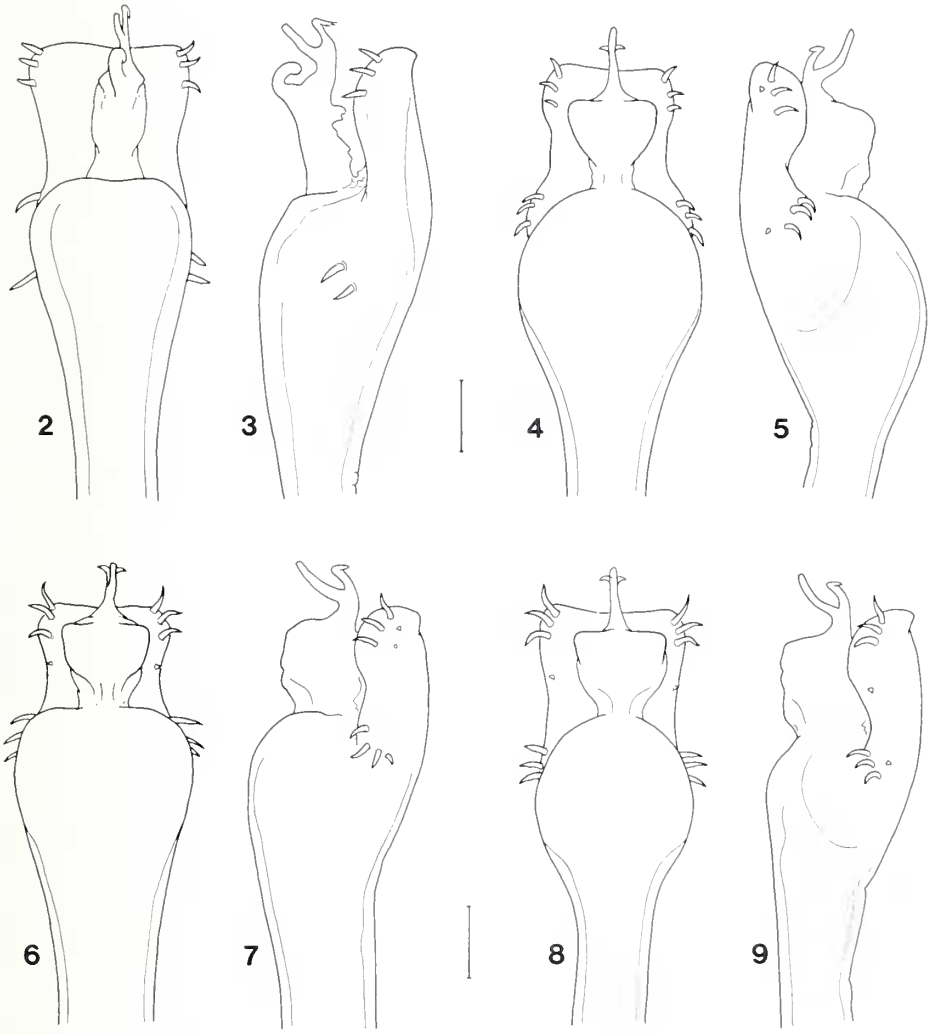
Pachyloïdes Holmberg, 1878:72.
Pachyloides: Ringuelet 1956:19 [=*Canalsia*]; 1959: 351 [complete synonymy].
Canalsia Mello-Leitão, 1930:139.
Daguerreia Canals, 1933: 5, **syn. n.**

Type species: *Pachyloides thorellii* Holmberg, 1878, by indication (monotypy).

Distribution (Fig. 1 B): Argentina: provinces of Buenos Aires, Entre Ríos, Córdoba, Mendoza, San Juan, La Rioja, Catamarca, Tucumán, Salta and Jujuy. Uruguay. Southern Bolivia. Southern Brazil?

Emended Diagnosis: Eye mound with paired armature, two apophyses or conical tubercles, sometimes very small. Dorsal scutum generally unarmed, with granulation arranged in transverse rows or irregularly; in many species it is very conspicuous, and in some cases a pair of paramedian granules on areas III and IV are larger than the rest, even resembling low tubercles. Palpal femora armed with one mesal, subapical spine. Tarsal formula: 6:n:6-7:6-7. Penis: apical plate of truncus bearing 5-7 pairs of lateral spines, in two groups (subapical and basal); stylus with a short ventral process, with a bifurcated tip.

Comparisons: *Parabalta* differs from *Pachyloides* by many features of its external morphology, especially the general habitus (*Parabalta* being larger animals,



FIGS 2-9

Morphology of distal end of penis in four gonyleptid species: 2-3. *Parabalta reedii* (Butler), 2, dorsal view, 3, lateral view; 4-5. *Pachyloides thorellii* Holmberg, 4, dorsal view, 5, lateral view, 6-7. *Pachyloides maculatus* (Canals) comb. n., 6, dorsal view, 7, lateral view, 8-9. *Pachyloides cochuna* n. sp., 8, dorsal view, 9, lateral view. Scale lines: 0.1 mm.

with dorsal scutum almost smooth) and the armature of leg IV of male (among other differences, nearly all species of *Parabalta* bear strong, ventral apophyses on tibia IV, while this segment is always unarmed in *Pachyloides*). The most important difference concerns the genital morphology: a dorsal, finger-like projection at the basis of stylus characterizes penes of *Parabalta* (Figs 2-3); this structure is lacking in *Pachyloides* (Figs 4-9). On the other hand, the nearest relative of *Pachyloides* is the genus *Neopucroliella*, with general habitus and morphology of penis very similar (cf. ACOSTA 1993: figs 6-7). Hitherto these genera have been differentiated largely by the tarsal formula (5:n:6:6 in *Neopucroliella*). Whether they are synonyms, or if the latter should be ranked as a subgenus of *Pachyloides*, is yet to be determined.

Included species: *Pachyloides thorellii* Holmberg, 1878 [=*Pachyloides delicatus* Mello-Leitão, 1931]; *Pachyloides sicarius* (Roewer, 1925) **comb. n.**; *Pachyloides borellii* (Roewer, 1925) **comb. n.**; *Pachyloides maculatus* (Canals, 1933) **comb. n.**; *Pachyloides tucumanus* Canals, 1943; *Pachyloides alticola* (Ringuelet, 1962) **comb. n.**; *Pachyloides aelleni* Silhavy, 1979; *Pachyloides hades* Acosta, 1989; *Pachyloides cochuna* n. sp., here described; *Pachyloides iheringi* Roewer, 1913 (*); *Pachyloides armatus* Roewer, 1916 (*); *Pachyloides bellicosus* Roewer, 1913 (*); *Pachyloides calcartibialis* Roewer, 1916 (*); *Pachyloides fallax* Mello-Leitão, 1932 (*); *Pachyloides taurus* Mello-Leitão, 1937 (*); *Pachyloides spinosus* (Canestrini, 1888) *Species inquirenda.*

* The six asterisked species, which occur in southern Brazil, constitute a homogeneous group, that may prove to belong to another genus, as suggested by their external morphology. The question still remains to be solved, until data from their genital morphology become available.

Excluded species:

Pachyloides orientalis Roewer, 1913: belongs to the genus *Discocyrtus* Holmberg, 1878 (ACOSTA, in press).

Pachyloides fischeri Müller, 1918: junior synonym of *Discocyrtus dilatatus* Sörensen, 1884 (ACOSTA, 1995).

Pachyloides tuberculatus Müller, 1918: junior synonym of *Discocyrtus dilatatus* Sörensen, 1884 (ACOSTA 1995).

Incertae sedis: *Daguerreia inermis* Soares & Soares, 1947:217.

Pachyloides cochuna n. sp. (Figs 8–14)

Parabalta sicaria: RINGUELET 1959 (part.):365, figs 51 a, b [misidentification: material in MACN with catalog numbers 3398 and 3397].

Holotype (♂) and allotype (♀) (MHNG), 1 ♂ and 1 ♀ paratypes (CDA), 1 ♂ and 1 ♀ paratypes (SMF): Río Cochuna, province of Tucumán, Argentina, 10/I/1993 (L. Acosta, D. Hauser); 4 ♂ paratypes (MACN 3398) and 5 ♀ paratypes (MACN 3397), Esquina Grande, province of Catamarca, Argentina, 17-20/VII/1950 (Cranwell-Navas).

Other material examined: ARGENTINA. Province of Tucumán.- Between Alpachiri and Rio Cochuna, 770 m, 11/I/1993 (L. Acosta, D. Hauser), 1 ♀ (CDA), 780 m, 1 ♂, 3 ♀

(CDA), 790 m, 1 ♂, 1 ♀ (CDA), 950 m, 1 ♂, 2 ♀ (CDA), 980 m, 4 ♂, 5 ♀ (CDA), 1000 m, 5 ♀ (CDA); Rio Cochuna, 1070 m, 10/I/1993 (L. Acosta, D. Hauser), 12 ♂, 15 ♀ [not types] (CDA); same loc., 6/III/1963 (W. Weyrauch), 3 ♂ (IML); 8 km from Río Cochuna to La Banderita, 1570 m, 12/I/1993 (L. Acosta, D. Hauser), 1 ♂ (CDA); La Banderita, 1700-1750 m, 12/I/1993 (L. Acosta, D. Hauser), 1 ♀ (CDA).

Etymology. The species is named after the type locality.

TABLE 1

Measurements (mm) of holotype ♂ and allotype ♀ of *Pachyloides cochuna* n. sp.

	Holotype ♂	Allotype ♀
Scutum, length/width	6.75/6.71	6.24/5.67
Leg I, total/femur length	12.35/3.09	10.67/2.68
Leg II, total/femur length	18.69/4.73	16.24/4.09
Leg III, total/femur length	15.94/4.29	13.65/3.62
Leg IV, total length	21.78	18.07
trochanter	1.94	1.21
femur	4.96	4.29
patella	2.01	1.74
tibia	4.29	3.59
metatarsus	6.37	5.30
tarsus	2.21	1.94
Pedipalp, total/femur length	7.21/1.88	6.81/1.68
Chelicera, total length	2.11	1.94
Ocular tubercle, width/height	1.02/0.62	0.87/0.35

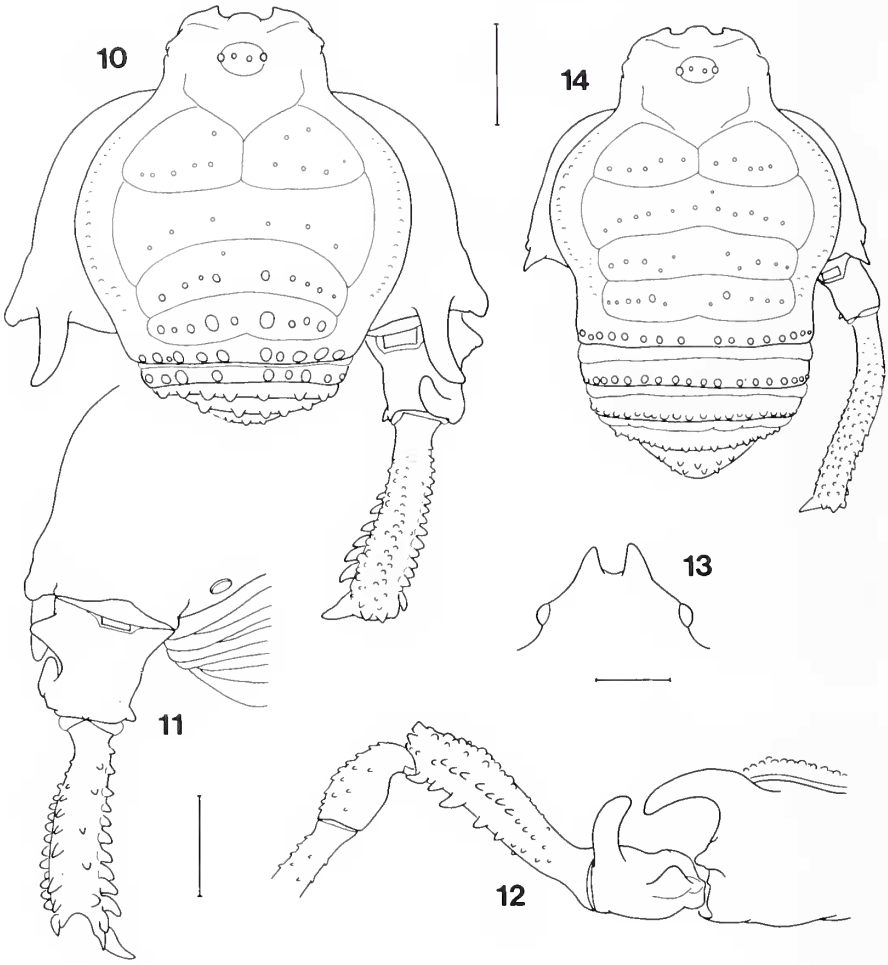
Distribution: Only known from the SW corner of the province of Tucumán and bordering area in the province of Catamarca. Collected between 770 m and 1700 m, in the biogeographic unit known as the "yungas", both in the subtropical montane rainforest and in the aliso forest belt (though it seems to be more abundant in the former biotope).

Description:

Coloration: General colour in preserved specimens hazel, living individuals lighter and more reddish. Dorsal surface with finely granular pigment, forming reticulation on prosoma and lateral areas, and leaving clear spaces around mesotergal granules. Limits of scutum areas usually bordered by darker lines. Coxa IV dorsally uniform hazel, except anterolateral angle, with open reticulation, that extends to the whole ventral surface of the animal. Rest of leg IV more reddish, with faint pigment, except metatarsus and tarsus, yellowish-hazel.

Measurements: Holotype and allotype: Table 1. Dorsal scutum length, ♂: 5,30-7,20 mm ($\bar{x}$= 6,41 mm, n= 31), ♀: 5,30-6,57 mm ($\bar{x}$= 6,07 mm, n=40).

Morphology: Eye mound with a pair of conical apophyses. All scutal areas with one row of granules. Granulation of scutum less conspicuous on anterior areas, increasing posteriorly in number and size of granules. Lateral areas with incons-



FIGS 10-14

Pachyloides cochuna n. sp. **10-13**: Holotype male (MHNG), 10. Dorsal scutum, coxae IV, right trochanter and femur IV, dorsal view, 11. Coxa, trochanter and femur IV (right), ventral view, 12. Coxa, trochanter, femur and patella IV (right), prolateral view, 13. Eye mound, posterior view. **14**: Allotype female (MHNG), dorsal scutum, coxae IV, right trochanter and femur IV, dorsal view. Scale lines: 2 mm in Figs 10-12, 14; 0.5 mm in Fig. 13.

picuous row of granules. Legs I-III unarmed. Tarsal formula: 6:7-10:6:6 (6:8/9:6:6 in holotype, 6:7/8:6:6 in allotype). Tarsi I showed unusually high degree of variability, 7.2% of the studied tarsi having 5 tarsomeres; a single female had 7 tarsomeres in legs I (its tarsal formula was unique in being 7:8/9:6/7:7). Five of the 71 examined individuals had 7 segments in at least one tarsus III and/or IV. Variation of number of tarsomeres on leg II:

	7	8	9	10	n
♂	14	29	14	2	59
♀	45	31	3	–	79

Male. Areas I-II with small granules, these become pearl-like in areas III, IV, V and free tergites. In area III, and especially area IV, two slightly larger paramedian granules, sometimes looking like low tubercles. In most examples the row in area V leaves a median sector free of granules, as do the rows in free tergites I and II. Coxa IV expanded sideways, its posterolateral angle armed with a tuberous apophysis, opposite a prolateral apophysis on the trochanter; above it, a strong apophysis pointing backwards. Trochanter: in addition to the mentioned prolateral apophysis, there is a strong, finger-shaped one, latero-distal and pointing upwards. Femur: dorsal surface covered by dense pearl-shaped granulation; prodorsal row of larger granules, whose size increases towards distal end; pro- and retroventral borders with a row of short, acute apophyses, each increasing in size distally; subdistally, the retroventral row is suddenly curved downwards, and then appears the largest apophysis, apicomedial. Patella and tibia covered by small granules. Penis: Figs 8-9.

Female. Scutum granulation much less conspicuous. Leg IV armed with only an acute, prolateral apophysis on coxa, and a spur-like, apicomedial apophysis on femur.

Diagnosis and comparisons: In general *P. cochuna* resembles those *Pachyloides* species bearing a finger-like, upward-pointing apophysis on trochanter IV (*P. tucumanus*, *P. thorellii*, and to some extent *P. hades*), but the new species is more robust. Moreover, the presence of a tuberous apophysis on coxa IV of the male is unique to this species within the genus. *Pachyloides cochuna* was confused with *P. sicarius* by RINGUELET (1959), although the latter species lacks such a finger-shaped apophysis on the trochanter; indeed, these two species share only the tarsal formula.

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